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EXECUTIVE SUMMARY OF THE
NATIONAL COMMUNICATION OF

LATVIA

submitted under Articles 4 and 12 of the
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Intergovernmental Negotiating Committee of the Framework Convention on Climate Change (INC/FCCC), the interim secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

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Copies of the national communication of Latvia may be obtained from the following address:

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INTRODUCTION

1. Latvia participated at the United Nations Conference on Environment and Development at Rio de Janeiro in June, 1992 and signed the Framework Convention on Climate Change. The Convention is ratified by the Saeima on 23 February 1995.

2. The national communication of the Republic of Latvia provides other Parties to the Convention with general information about Latvia; presents data on emissions of greenhouse gases (GHG); outlines policy and measures to be adopted gradually in order to stabilize GHG emissions by 2000 and to prevent these from increasing in future.

3. The principal difficulties in preparing the national communication were linked with deep changes aimed at Latvia's transition from a centrally planned economy model to market relations, taking place in all sectors of the economy, state administration and legislation in the aftermath of the collapse of the USSR and regaining of independence. Restructuring is still under way in many sectors of the economy which have been principal sources of greenhouse gas (GHG) emissions in the past. Since a full-value system for accumulation of statistical data is yet to be devised, it is not possible for the time being to produce reliable projections or recommendations concerning directions of economic development up to 2000 and 2010.

4. Apart from Latvia there is a number of Eastern European countries -- signatories to the Convention, which are undergoing a transition stage to a market-based economy. The special circumstances taken into account, the Convention provides for some flexibility in preparing the National Communication in countries with transition economies.

5. Within the context of the National Communication of the Republic of Latvia the term flexibility is interpreted in the following way:

(a) 1990 is designated as **the base year** in accordance with the Convention, however, to facilitate better understanding of processes taking place in various sectors of the national economy, additional to the base year, information related to some previous years is presented.

(b) **Inventory of emissions**. Since radical changes have been taking place in the Latvian economy from 1990, it has been impossible to assess industrial activities in some of subsectors, except cement production, and to evaluate GHG emissions in accordance with the methodology recommended by the Intergovernmental Panel on Climate Change/Organisation for Economic Co-operation and Development (IPCC/OECD). Therefore, NO_x, CO and NMVOCs (non-methane volatile organic compounds) emissions pertinent to industries and sectors utilizing solvents are made available from statistical records of Latvian Environmental Data Centre. CO_2 sinks in forestry are assessed in compliance with the methodology of United States Environmental Protection Agency using the database of the Forest Department of the Ministry of Agriculture.

(c) **Projection of emissions**. Although Chapter 4 deals with all economic sectors, reliable quantitative assessment of efficiency of measures aimed at reducing GHG emissions is feasible solely in the energy sector.

GENERAL INFORMATION ABOUT THE REPUBLIC OF LATVIA

6. Latvia is situated on the edge of the Eastern European plane on the shores of the Baltic Sea. The location of Latvia and the proximity of the Atlantic Ocean determine its climate, that is, moderately warm summers, moderately cold winters, frequent cyclones. Its total land area is 64 600 km^2, including 39 per cent of cultivated land, 44 per cent of forests, shrubs and groves. The population of Latvia in 1990 was about 2.7 millions.

7. The Latvian economy is undergoing a transition period from centralized planning to market relations, which has brought about significant changes in all sectors of State activities, particularly in the energy and industrial sectors. The Latvian energy sector has no considerable resources of its own -- 50 per cent of electricity and 90 per cent of fuel is imported, thus a transition to market prices in case of energy resources hit the Latvian economy exceptionally severely and served as one of the aspects causing its loss of competitivity.

8. After regaining independence, the Latvian legislation is undergoing a transformation. For the time being legislative acts elaborated and approved after regaining independence, are in force, as well as those used in Latvian SSR and the USSR.

INVENTORY OF EMISSIONS

9. The following gases are considered in the GHG inventory in Latvia: CO_2, CH_4, N_2O, NO_x, CO, NMVOC. Inventory data on 1990 emissions are presented in Table S.1. Employing global warming potential (GWP) coefficients, it is assessed, that aggregated reduced GHG emissions in 1990 amounted to 27 632 Gg of CO_2 equivalents, of which CO_2 constitutes 83.1 per cent, CH_4 -14.1 per cent and N_2O -2.8 per cent.

10. Combustion of fuel is the principal source of CO_2 emissions, whereas agriculture is the main source of CH_4 emissions. CO_2 sinks in Latvia in 1990 covered about 50 per cent of total CO_2 emissions.

11. Aggregated GHG emissions in Latvia over the period of 1990-1994 have dropped markedly due to processes of restructuring and decline of production and fragmentation in many sectors of industry and collective farming.

POLICIES AND MEASURES MITIGATING CLIMATE CHANGE

12. No particular national policy mitigating climate change has been elaborated in Latvia. To a large extent the climate policy is a combination of environmental protection policy and of development strategies in various economic sectors.

Summary Table S.1. Inventory of GHG emissions (Gg) in Latvia in 1990

GHG source and sink categories	CO_2	CH_4	N_2O	NO_x	CO	NMVOC
Total emissions and sinks	22 976.3	158.93	2.38	90.135	363.12	67.722
1. All energy	22 605.6	4.167	1.03	90.135	363.12	55.324
1.A. Fuel combustion	22 605.6	2.368	1.03	90.135	363.12	55.315
1.A.1. Energy & transformation	8274.4	0.509	0.07	15.233	22.727	0.648
1.A.a Losses - transport &	34.5					
1.A.2. Industry	2680.4	0.059	0.014	3.362	0.939	0.099
1.A.3. Transport	5660.6	1.486	0.108	65.833	329.07	54.199
1.A.5. Residential heating	3140.3	0.184	0.029	2.711	4.414	0.179
1.A.6. Agriculture/Forestry	1449.7	0.108	0.016	1.582	4.789	0.124
1.A.7. Other	1365.7	0.022	0.793	1.424	1.179	0.066
1.B. Fugitive fuel emission		1.799				0.009
2. Industrial processes	370.7					
2.E.1. Cement production	370.7					
3. Solvent and other product						7.398
3.A. Degreasing and dry cleaning						1.119
3.B. Chemical products						0.680
3.C. Other						5.599
4. Agriculture		11.27	1.351			
4.A. Enteric fermentation		97.96				
4.B. Animal waste		13.31				
4.C. Agricultural soils			1.351			
5. Land use change and	(-14 300)					
5.C. Managed forests	(-14 300)					
6. Waste		43.5				
6.4. Landfills		43.5				

13. Development concepts and plans for Latvian economic sectors:

- Environmental Protection Policy Plan (EPPP, elaborated and accepted in 1995),
- Projection of Latvian Economic Development (elaborated in 1994),
- Public Investment Programme (elaborated in 1994),
- Macroeconomic Stabilization Programme (elaborated in 1994),

- Energy Master Plan for Latvia (LEDP, elaborated in 1994),
- National Development Programme of Motor Transport (elaborated in 1994 within the frame of Transport Development National Programme),
- Forest Development Programme (elaborated in 1992),
- Forestry Development Policy (elaborated in 1994),
- Concept of National Strategy in Rural Areas (elaborated in 1994),
- Concept of National Strategy in Industry (elaborated in 1995).

14. The objectives of national climate policy are formulated in EPPP. Significant improvement of environment quality is sought in territories, where environment quality causes high risks, preventing at the same time deterioration of environment quality in the remaining territory. Also, EPPP is aimed at integration efforts with respect to environmental protection in all sectors and sides of life. Pursuant to Article 4, Clause 2, paragraph (a) of the Convention on Climate Change, Parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of the Convention, recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol would contribute to such modification, and taking into account the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective. **Pursuant to Article 4.2 (a) of the Convention on Climate Change to which Latvia is a Signatory Party, the said objectives relevant to greenhouse gases is to stabilize emissions of these gases by 2000 not exceeding the levels of 1990 emissions.** Due to economic restructuring none of the sectors expects rapid growth in production and consumption activities before 2000. Moreover, the activity levels will fall short of those of 1990. Consequently, emissions of GHG in comparison with 1990 shall not increase. However, the levels may grow after 2000 or even earlier, if unforeseen changes take place and actual economic development markedly differs from forecast scenarios. Thus, the measures characteristic of Latvia's circumstances, both planned and implemented, are considered.

15. Climate policy and measures in individual economic sectors can be expressed by combining principal requirements of sectorial development with basic principles of environmental protection. The most significant measures pertinent to climate policy are connected with energy and transport sectors. Policy and measures aimed at reducing GHG emissions in all sectors of economy are summarized in Tables S.2 to S.4.

Summary Table S.2. Policy and measures for reduction of CO_2 emission levels

Sectors	Economic measures	Laws	Education, information	Governmental measures	Voluntary actions	Scientific studies
Energy						
1.a. Combustion of fuel 1.A.1. Energy production and trans-formation	1. Natural resource tax (P) 2. Differen-tiated excise tax for different types of fuel in favour of gas; shall cut CO_2 emissions by 6 per cent (P)	Natural resource tax (P)	Public awareness building action - Last Warning- (11.02.95) dedicated to GHG impact upon climate (I)	1. Free market price for fuel (I) 2. Organization of energy saving campaign (I) 3. Reconstruction of heating network shall cut losses and CO_2 emissions by 3 per cent (UI) 4. Installation of heat meters shall cut heat consump-tion and CO_2 emissions by 10 per cent (UI) 5. Utilization of alternative energy -- construction of hydroelectric plants on small rivers (UI) 6. Financial support to scientific research (P)	1. Indigenous biofuel (wood, peat), more extensive utilization of hydro-resources shall cut CO_2 emissions by 2-4 per cent (UI) 2. Reduction of heat losses by packing windows during winter season (I)	1. Development of novel technologies (UI) 2. Studies on alternative energy sources (solar, wind) (UI) 3. Studies on heat insulation of buildings (UI)
1.A.3. Transport	Differen-tiated excise tax on different types of petrol (P)	1. Rigorous regula-tions of annual vehicle check-up (I) 2. Speed limits (I)	Education of vehicle drivers (I)	1. Changes in transport infrastructure in favour of water transport and railway transport (P) 2. Restrictions for private transport within cities (UI) 3. Improvements in public transport system (P)	More extensive use of bicycle transport (UI)	Development of production of up-to-date and ecologically friendly transportation means and equipment (P)
1.A.5. Residential heating	Natural resource tax (P)	Natural resource tax (P)	Ads on heat saving in mass media (I)	Free market prices for all types of fuel (I)	Reduction of heat losses by packing windows during the winter season (I)	Studies on heat insulation of buildings (UI)
5. Land use change and forestry 5.C. Managed forests	Fines for unauthorized felling (I)	Laws on land and forest manage-ment (I)	Building of public awareness of the forest as lungs of the planet, ads in mass media (UI)	1. Forest inspection services, financial support (I) 2. Preservation and renewal of forest resources (I) 3. Land use supervision system (UI)	Tidying-up of forests, planting campaign (UI)	

Note: I - implementation completed, UI - under implementation, P - planned.

Summary Table S.3. Policy and measures for reduction of CH_4 emission levels

Sectors	Economic measures	Laws	Education, information	Governmental measures	Voluntary actions	Scientific studies
1. Energy 1.A. Combustion of fuel	Natural resource tax (P)	Natural resource tax (P)	Public awareness building action -- Last Warning -- (11.02.95) dedicated to GHG impact upon climate (I)	1. Free market price for fuel (I) 2. Organization of energy saving campaign (I) 3. Installation of heat meters shall cut heat consumption and CH_4 emissions by 1.5% (P) 4. Utilization of alternative energy -construction of hydroelectric plants on small rivers(UI) 5. Financial support to scientific research (P)		Development of technologies for improved combustion of fuel (UI)
1.B. Emission of fugitive fuel 1.B.1. Natural gas	1. Natural resource tax (P) 2. Fines on actions leading to gas leakage (I)	Natural resource tax, laws on air protection (P)		1. Free market price for fuel (I) 2. Technical inspection services for gas management, provision of financial support (I) 3. Installation of gas meters shall cut consumption and emissions of CH_4 by 1-2 per cent (UI) 4. Financial support to scientific		Providing state-of-the-art equipment for gas companies (UI)
4. Agriculture 4.A. Enteric fermentation 4.B. Animal waste			Training of farmers (I)	Free market prices on energy resources and fodder causes reduction of cattle (I)	More efficient management in private farms, as compared to large farms: adequate storage conditions for manure, its timely turn-in into soil (UI)	
6. Waste 6.A. Landfills	Fines for unauthorized dumping (I)	Drafting of new laws (UI)	Training courses at colleges and secondary schools (I)	1. Establishment of waste management administration (P) 2. Construction of waste reprocessing plant (P) 3. Financial support for scientific studies (P)	1. Actions of waste sorting (UI) 2. Reduction of waste amount (P)	1. Study of utilization of biogas (P) 2. Development of recycled waste utilization technologies (UI)

Note: I - implementation completed, UI - under implementation, P - planned.

Summary Table S.4. Policy and measures for reduction of N_2O emission levels

Sectors	Economic measures	Laws	Education, information	Governmental measures	Voluntary actions	Scientific studies
1. Energy 1.A. Combustion of fuel 1.A.1. Energy production and transformation	Natural resource tax (P)	Natural resource tax (P)	Public awareness building action -- Last Warning -- (11.02.95) dedicated to GHG impact upon climate (I)	1. Free market price for fuel (I) 2. Organization of energy saving campaign (I) 3. Installation of heat meters shall cut heat consumption and N_2O emissions by 1.5 per cent (P) 4. Utilization of alternative energy -- construction of hydroelectric plants on small rivers (UI) 5. Financial support to scientific research (P)		
4. Agriculture 4.C. Agricultural soils		Laws on land management (Annex, Table 4.2) (I)	Providing consultations and assistance to farmers (I)	1. Free market prices for organic fertilizers prevent their squandering (I) 2. Financial support of scientific studies (P)	1. Proper storage of organic fertilizers (UI) 2. Proper turn-in of fertilizers into soil (UI)	Elaboration of scientifically substantiated recommendations (UI)

Note: I - implementation completed, UI - under implementation, P - planned.

PROJECTIONS

16. Macroeconomic projections for 2000, the GHG emissions inventory for 1990 and the assessment of efficiency of the policy countering climate change form the basis for GHG projections.

17. The macroeconomic projection is elaborated based on three scenarios of economic development. Eventual growth of investments is regarded as the main factor fostering further economic growth, which, in turn, depends to a large extent upon macroeconomic policy adopted by the government.

18. In compliance with the first scenario, to be regarded arbitrarily as pessimistic, it is assumed that the government fails to find suitable tools for a more efficient increment of investments. In this case growth of gross domestic product (GDP) during 1994 and 1995 might be insignificant, and growth beginning only in 1996, might amount to 3-4 per cent per annum.

19. The second scenario is based on the assumption that the growth rate of GDP reaches 6 per cent. Data concerning this scenario are presented with most detail, since it is regarded as the most realistic. Tables for each scenario are presented in the Annex to Chapter 5 of the full communication.

20. In accordance with the third scenario, it is assumed that the government shall succeed in accelerating the process of investment, resulting in the growth of GDP already in 1995 of 4 per cent. The most rapid growth (7-8 per cent per annum) is expected to take place in 1998 and 1999. Some basic assumptions used in working out macroeconomic projections are demonstrated in Table S.5.

Summary Table S.5. Basic assumptions for macroeconomic forecast

Indicators (millions of Ls in fixed prices of 1993)	Year 1990	Reduction (% by the year 2000 compared to the year 1990)
Gross domestic product	2953	(-40%) - (-25%)
Energy production	365.8	(-22%) - (-15%)
Manufacturing	2053.5	(-54%) - (-37%)
Transport	1121.6	(-25%) - (-6%)

The projection of aggregate GHG emissions in 2000 (second scenario corresponding to medium economic growth rates and maximum growth in GDP after 1996 by 6 per cent per annum) is presented in Table S.6.

Summary Table S.6. Projection of GHG emissions (Gg) in Latvia in 2000

GHG	1990	2000 (s. 2)
CO_2	22 976	16 956
CO_2 sink	(-14 300)	(-8940)
CH_4	159	114.15
N_2O	2.38	1.43
NO_x	90.13	52.48
CO	363.12	278.23
NMVOC	62.7	39.19

21. The considerable drop in GHG emissions is attributable to restructuring of all sectors of the economy. However, this process will be facilitated by policy and measures referred to in Tables S.2, S.3 and S.4. Assessment of the efficiency of implemented measures is partly feasible solely in energy sector, because:

- Latvia has no experience in assessments of this type;

- there has been no practice of individual grouping of measures aimed at reduction of GHG emissions and other air pollution in Latvia previously.

22. The data depicted in Table S.6. reveal that CO_2 emissions in 2000 in comparison with 1990 will drop by 26 per cent, CH_4 by 28 per cent and N_2O by 40 per cent. Aggregate GHG emissions expressed in Gg of CO_2 equivalents (GWP) in comparison with 1990 will decrease by 27 per cent.

SYSTEMATIC OBSERVATIONS AND STUDIES

23. Institutions subordinate to MEPARD and the Hydrometeorological Agency under the Ministry of Transport perform observations and monitoring of climate changes. Climate observations and databases assist scientists in understanding better the climate changes in Latvia and throughout the world. Studies related to the above issues are undertaken with support of the Latvian Science Council and are carried out at Latvian universities. The principal studies are:

- spectroscopy and photochemistry of polluted atmosphere;

- bio-indicative systems and systems for qualitative environment assessment;

- use of novel bio-motoring techniques in fresh water basins;

- circulation of organic carbon and biogenic elements in the ecosystem of the Riga Gulf.

24. Applied investigations are connected with the development of heat energy saving methods, as well as with research in the field of energy-intensive and ecologically-friendly techniques for energy production.

25. After the reinstitution of national sovereignty Latvian scientists are gradually engaging in implementation of the Programme on Global Climate Change. However, collaboration is merely nominal and is not attracting any financial support from united international sources or from the national budget.

EDUCATION, TRAINING AND PUBLIC AWARENESS

26. During the past 1 to 3 years, a wide network of studies related to environmental protection has been created in Latvian schools and universities. As a result, efforts undertaken by school personnel and the academic community have made a valuable initial contribution to educate the general public and the younger generation in particular, on environmental issues and on eventual impacts of these upon global climate change.

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